



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2014-0326; Directorate Identifier 2013-CE-051-AD; Amendment 39-17965; AD 2014-18-01]**

**RIN 2120-AA64**

**Airworthiness Directives; Rockwell Collins, Inc. Transponders**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for certain Rockwell Collins TDR-94 and TDR-94D Mode select (S) transponders that are installed on airplanes. This AD was prompted by instances where the TDR-94 and TDR-94D Mode S transponders did not properly respond to Mode S Only All-Call interrogations when the airplane transitioned from a ground to airborne state. This AD requires inspecting the setting of the airplane type code category strapping and requires either modifying the airplane type code category setting or installing the software upgrade to convert the affected transponders to the new part number. We are issuing this AD to correct the unsafe condition on these products.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** For service information identified in this AD, contact Rockwell Collins, Inc., Collins Aviation Services, 350 Collins Road NE, M/S 153-250, Cedar Rapids, IA 52498-0001; telephone: 888-265-5467 (U.S.) or 319-265-5467; fax: 319-295-

4941 (outside U.S.); email: [techmanuals@rockwellcollins.com](mailto:techmanuals@rockwellcollins.com); Internet: [http://www.rockwellcollins.com/Services\\_and\\_Support/Publications.aspx](http://www.rockwellcollins.com/Services_and_Support/Publications.aspx). You may review this referenced service information at the FAA, Small Airplane Directorate, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the FAA, call (816) 329-4148.

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0326; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Ben Tyson, Aerospace Engineer, Wichita Aircraft Certification Office, FAA, 1801 Airport Road, Room 100, Wichita, Kansas 67209; phone: 316-946-4174; fax: 316-946-4107; email: [ben.tyson@faa.gov](mailto:ben.tyson@faa.gov).

### **SUPPLEMENTARY INFORMATION:**

#### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain Rockwell Collins TDR-94 and TDR-94D Mode select (S) transponders that are installed on airplanes. The NPRM published in the Federal Register on May 22, 2014, (79 FR 29384). The NPRM was prompted by instances where the TDR-94 and TDR-94D Mode S transponders did not properly respond to Mode S Only All-Call interrogations when the airplane transitioned from a ground to airborne state.

We were notified that Bombardier CL604 airplanes in Eurocontrol airspace were not transmitting the appropriate Mode S replies. In at least one case, the flight crews switched to the other installed transponder, resulting in normal operation. Rockwell Collins, Inc. confirmed that other types of airplane could exhibit this same unsafe condition. As a result of the issue in Eurocontrol airspace, EASA issued Airworthiness Directive 2010-0003R1, effective date January 11, 2010.

The TDR-94 and TDR-94D Mode S transponder internal software does not correctly implement the air/ground override function when the airplane type code strapping is set to any value other than (1) or (0) and the airplane rotation speed is greater than 100 knots. The error in the air/ground override function inhibits the Mode S Only All-Call replies.

The NPRM proposed to require inspecting the setting of the airplane type code category strapping and require either modifying the airplane type code category setting or installing the software upgrade to convert the affected transponders to the new part number. We are issuing this AD to correct the unsafe condition on these products.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comment received on the NPRM and the FAA's response to the comment.

### **Request**

Kevin Lorrigan requested we add Beechcraft Models B300, B300C, and Hawker 900XP airplanes to paragraph (c), Applicability, to the AD because typically these airplanes are equipped with the TDR-94 or TDR-94D transponders with weight-on-wheels input.

The FAA agrees those airplanes were equipped with the TDR-94 or TDR-94D transponders when they were delivered from the factory. However, we disagree with

adding these airplanes to paragraph (c), Applicability, of the AD. After we consulted with Beechcraft and reviewed their production records, we determined these airplanes are unaffected in their original “as-delivered” configurations. The airplanes were delivered with the TDR-94 or TDR-94D transponders, but they were strapped in such a manner that they remain unaffected.

Paragraph (c), Applicability, of this AD is not intended as all-inclusive. Paragraph (c) of this AD states, “...transponders that are installed on but not limited to the airplanes...” and gives a partial listing of airplanes known to have the affected transponders installed. Due to the possibility of modification of the airplane after delivery, each owner must evaluate the airplane’s current configuration to determine compliance with the AD.

We did not change the final rule AD action based on this comment.

## **Conclusion**

We reviewed the relevant data, considered the comment received, and determined that air safety and the public interest require adopting this AD as proposed except for minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM (79 FR 29384, May 22, 2014) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (79 FR 29384, May 22, 2014).

## **Costs of Compliance**

We estimate that this AD affects 8,000 products installed on airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

**Estimated costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Inspect the setting of the airplane type category strapping	1 work-hour X \$85 per hour = \$85	Not applicable	\$85	\$680,000

We estimate the following costs to do any necessary corrections that will be required based on the results of the inspection. We have no way of determining the number of airplane that might need these corrections:

**On-condition costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>
Modify the airplane type code category strapping	1 work-hour X \$85 per hour = \$85	Not applicable	\$85
Convert the part number of the equipment	2 work-hours X \$85 per hour = \$170	See conversion parts cost table	Varies depending on applicable part number or service bulletin

**Conversion parts cost table—TDR-94 and TDR-94D**

<b>Starting part number</b>	<b>Service Bulletin 505</b>	<b>Service Bulletin 507</b>	<b>Service Bulletin 508</b>	<b>Service Bulletin 509</b>
<b>-007</b>	N/A	\$5,886	\$12,636	\$18,465
<b>-008</b>	\$2,323	\$5,886	\$3,414	\$9,429
<b>-108</b>	\$2,323	N/A	N/A	\$6,816
<b>-207</b>	N/A	\$5,886	\$9,234	\$15,057
<b>-308</b>	\$2,323	\$5,886	\$3,414	\$9,429
<b>-309</b>	N/A	\$5,886	\$3,414	\$9,429
<b>-310</b>	N/A	N/A	N/A	\$6,183
<b>-408</b>	\$2,323	N/A	N/A	\$3,414
<b>-409</b>	N/A	N/A	N/A	\$3,414

#### **Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA’s authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency’s authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: “General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

#### **Regulatory Findings**

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the

national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

#### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

#### **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

#### **PART 39 - AIRWORTHINESS DIRECTIVES**

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

- 2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

2014-18-01 **Rockwell Collins, Inc.:** Amendment 39-17965; Docket No. FAA-2014-0326; Directorate Identifier 2013-CE-051-AD.

#### **(a) Effective Date**

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(b) Affected ADs**

None.

**(c) Applicability**

(1) This AD applies to the following Rockwell Collins, Inc. part number (P/N) Mode S transponders that are known to be installed on but not limited to the airplanes listed in paragraphs (c)(2)(i) through (c)(2)(xiv) of this AD, except for those airplanes listed in paragraphs (c)(3)(i) through (c)(3)(vi) of this AD, that have been modified in-production or in-service:

(i) TDR-94: CPN 622-9352-008, 622-9352-108, 622-9352-308, 622-9352-408; and

(ii) TDR-94D: CPN 622-9210-008, 622-9210-108, 622-9210-308, 622-9210-408.

(2) The products listed in paragraphs (c)(1)(i) and (c)(1)(ii) of this AD may be installed on but not limited to the following airplanes featuring weight-on wheels input to the transponder, certificated in any category:

(i) ATR42 and ATR72;

(ii) Bombardier (Canadair) CL-600-2B16 (604 Variant);

(iii) Bombardier CL-600-2B19 (RJ100 and RJ200);

(iv) Cessna 525, serial numbers (S/N) 525-0600 through 525-0684 (CJ1);

(v) Cessna 525A, S/N 525A-0300 through 525A-0438 (CJ2);

(vi) Cessna 525B, S/N 525B-0001 through 525B-0293 (CJ3);

(vii) Cessna 560, S/N 560-0751 through 560-0802 (Citation Encore);

(viii) Cessna 560XL, S/N 560-6001 and subsequent;

(ix) Dassault Aviation Mystere-Falcon 50;

(x) Dassault Aviation Mystere-Falcon 900;

(xi) Dassault Aviation Falcon 2000;

(xii) Dassault Aviation Falcon 2000EX;

(xiii) Piaggio Aero Industries P.180 (Avanti and Avanti II); and

(xiv) SAAB 2000.

(3) This AD action does not apply to the excepted airplane models, identified in paragraphs (c)(3)(i) through (c)(3)(vi) of this AD, that have been modified in-production or in-service. They do not have the unsafe condition described in this AD.

(i) Dassault airplanes that have been modified in-service or in-production following the applicable Dassault Aviation service information as listed in table 1 of paragraph (c)(3)(i) of this AD.

Table 1 of paragraph (c)(3)(i) of this AD: Excepted Dassault Airplanes

Airplane Models	Service Bulletin	Modification(s)
Mystere-Falcon 50	F50-457	M2966 and M2968
Mystere-Falcon 900	F900-354	M3896
Falcon 900EX	F900EX-239	M3896
Falcon 2000	F2000-312	M2624 and M2632
Falcon 2000EX	F2000EX-043	M2624

(ii) Model ATR 42 airplanes or ATR 72 airplanes that had P/N 622-9210-108 transponders installed in production using ATR modification 05614 or installed in-service using ATR Service Bulletin ATR42-34-0167 or ATR Service Bulletin ATR72-34-1094, as applicable.

(iii) SAAB Model 2000 airplanes that had P/N 622-9210-008 transponders installed in production using SAAB modifications 6231, 6243, and 6249 or installed in-service using SAAB Service Bulletins 2000-34-066, 2000-34-072, and 2000-34-076.

(iv) Bombardier Aerospace (Canadair) airplanes Model CL-600-2B16 (604 Variant) that had P/N 622-9210-008 transponders installed and incorporated the corrective actions recommended in the Bombardier Advisory Wire AW 604-34-0078 using the instructions in Bombardier Aerospace Service Bulletin 604-34-054 (drawing 604-70482 Engineering Order, Revision D-1) or using a service request for product

support. Bombardier Aerospace (Canadair) airplanes Model CL-600-2B19 (RJ100 and RJ200) that had P/N 622-9210-008 transponders installed in production using Bombardier Aerospace Modification TC601R16789 or in service using Bombardier Aerospace Service Bulletin 601R-34-142 (Modification TC601R16790).

(v) Cessna Aircraft Company Models 525, 525A, and 525B airplanes that had P/N 622-9352-008 transponders installed in production using Cessna Engineering Change Records (ECRs) 55298, 58654, and 59567; and Model 525B airplanes that had P/N 622-9352-008 transponders installed in service using Cessna Aircraft Company Service Bulletin SB525B-34-03 or SB525B-34-08. Cessna Aircraft Company Models 525, 525A, 525B, 560, and 560XL airplanes that had P/N 622-9210-008 transponders installed in production using Cessna ECRs 55298, 58654, 59567, 56135, and 58032; and Model 525B airplanes that had P/N 622-9210-008 transponders installed in service using Cessna Service Bulletin SB525B-34-03 or SB525B-34-08.

(vi) Piaggio Aero Industries Model P.180 (Avanti) airplanes that had P/N 622-9210-008 transponders installed in production using Piaggio modification 80-0773 or in service using Piaggio Service Bulletin SB-80-0227. Piaggio Aero Industries Model P.180 (Avanti II) airplanes that had P/N 622-9210-008 transponders installed in production using Piaggio modification 80-0588 and 80-0598.

**(d) Subject**

Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code 34, Navigation.

**(e) Unsafe Condition**

This AD was prompted by instances where the TDR-94 and TDR-94D Mode S transponders did not properly respond to Mode S Only All-Call interrogations when the airplane transitioned from a ground to airborne state. We are issuing this AD to detect and correct Mode S transponders that do not respond correctly to Mode S Only All-Call

interrogations, which could result in increased pilot and air traffic controller workload as well as reduced separation of airplanes.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Inspection**

Within the next 2 years after [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD), inspect the airplane type code category strapping setting for a value of zero (0) or one (1) following Rockwell Collins, Inc. Service Information Letter 07-2, 523-0810069-101000, TDR-94( ) SIL 07-02, Revision 1, dated September 2, 2008. If the airplane type code category strapping is set to a value of zero (0) or one (1), no further action is required by this AD.

**(h) Modification**

If the airplane type code category strapping is not set to a value of zero (0) or one (1), within two years after [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER] (the effective date of this AD), do the actions required in either paragraph (h)(1) or (h)(2), to include all subparagraphs, of this AD.

(1) Modify the airplane type code category strapping setting to a value of zero (0) or one (1) following Rockwell Collins, Inc. Service Information Letter 07-2, 523-0810069-101000, TDR-94( ) SIL 07-02, Revision 1, dated September 2, 2008.

(2) Install a software upgrade to convert the part numbers of the transponders to the new part numbers using the following Rockwell Collins, Inc. service information, as applicable:

Note 1 to paragraph (h)(2) of this AD: More than one of the bulletins may apply to your particular P/N transponder, but each bulletin brings different capabilities and

associated costs. We recommend reviewing each bulletin to determine the optimal choice for your installation.

(i) Service Bulletin 505, 523-0816034-001000, TDR-94( )-34-505, dated September 2, 2008;

(ii) Service Bulletin 507, 523-0816423-301000, TDR-94/94D-34-507, Revision 3, dated December 5, 2011;

(iii) Service Bulletin 508, 523-0817821-001000, TDR-94( )-34-508, dated September 16, 2009; or

(iv) Service Bulletin 509, 523-0817822-001000, TDR-94( )-34-509, dated September 16, 2009.

**(i) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Wichita Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in paragraph (j)(1) of this AD.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

**(j) Related Information**

(1) For more information about this AD, contact Ben Tyson, Aerospace Engineer, Wichita Aircraft Certification Office, FAA, 1801 Airport Road, Room 100, Wichita, Kansas 67209; phone: 316-946-4174; fax: 316-946-4107; email: ben.tyson@faa.gov.

**(k) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Rockwell Collins, Inc. Service Information Letter 07-2, 523-0810069-101000, TDR-94( ) SIL 07-2, Revision 1, dated September 2, 2008.

(ii) Rockwell Collins, Inc. Service Bulletin 505, 523-0816034-001000, TDR-94( )-34-505, dated September 2, 2008.

(iii) Rockwell Collins, Inc. Service Bulletin 507, 523-0816423-301000, TDR-94/94D-34-507, Revision 3, dated December 5, 2011.

(iv) Rockwell Collins, Inc. Service Bulletin 508, 523-0817821-001000, TDR-94( )-34-508, dated September 16, 2009.

(v) Rockwell Collins, Inc. Service Bulletin 509, 523-0817822-001000, TDR-94( )-34-509, dated September 16, 2009.

(3) For service information identified in this AD, contact Rockwell Collins, Inc., Collins Aviation Services, 350 Collins Road NE, M/S 153-250, Cedar Rapids, IA 52498-0001; telephone: 888-265-5467 (U.S.) or 319-265-5467; fax: 319-295-4941 (outside U.S.); email: [techmanuals@rockwellcollins.com](mailto:techmanuals@rockwellcollins.com); Internet: [http://www.rockwellcollins.com/Services\\_and\\_Support/Publications.aspx](http://www.rockwellcollins.com/Services_and_Support/Publications.aspx).

(4) You may review this referenced service information at the FAA, Small Airplane Directorate, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the FAA, call (816) 329-4148.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the

availability of this material at NARA, call 202-741-6030, or go to:

<http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Kansas City, Missouri, on August 28, 2014.

Earl Lawrence,  
Manager, Small Airplane Directorate,  
Aircraft Certification Service.

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